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ROCKY MOUNTAIN SPOTTED FEVER

SOME POINTS IN ITS DIAGNOSIS AND PREVENTION

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ROCKY MOUNTAIN SPOTTED FEVER.

SOME POINTS IN ITS DIAGNOSIS AND PREVENTION.

Definition.

Rocky Mountain spotted fever is an acute, endemic, noncontagious, febrile disease, transmitted to man accidentally by the bite of an infective wood tick. It is characterized clinically by headache, pains in the back, joints, and extremities, a continuous moderately high fever, and a petechial eruption appearing first on the ankles, wrists, and forehead, then usually spreading over the entire body.

Distribution.

Rocky Mountain spotted fever occurs in the Rocky Mountain and Pacific States, east of the Coast Range Mountains. It is a rural rather than an urban disease, but may affect persons who have been exposed to tick bites either through having gone into tick-infested territory or, rarely, by having had ticks brought to them on such objects as live stock, animal skins, firewood, etc.

Seasonal Occurrence.

The great majority of cases of the disease occur during the tick season—from the opening of spring up to midsummer—but following the snow line, ticks will bite throughout the summer months, and cases are contracted in the higher mountains occasionally as late as August. When well warmed by sunshine or artificial heat, wood ticks may attach even during midwinter, and a few cases have been observed under such unusual circumstances.

Incubation Period.

The period of incubation following the tick bite is quite variable. The majority of cases develop from the fourth to the seventh day, but apparently authentic cases have been reported as early as the second and as late as the twelfth day following tick attachment.

Symptomatology.

The prodromal and early symptoms of Rocky Mountain spotted fever are similar to those observed in the other acute, eruptive, febrile diseases and, as in them, vary in degree. A chill or chilly

sensations, headache, pains all over the body, and a feeling comparable with the onset of influenza are evident. A macular roseolar eruption on the face, neck, and upper thorax is frequently seen as early as the second day. The characteristic petechial eruption on the forehead, wrists, and ankles appears from 24 to 48 hours later. In severe cases the petechiæ increase in size, become purpuric, and produce extensive sloughs on dependent parts of the body. The mind may be entirely clear, or a low delirium may be present. Constipation and albuminuria are common, and a general hyperæsthesia, with extreme lassitude, is the rule. The temperature is continuous, moderately high, and lasts from one week to 10 days. Recovery is slow but complete. The diagnosis of the condition should be made, however, from the case history, and the character of the eruption. The following table comparing Rocky Mountain spotted fever with the diseases which it most resembles is submitted as an aid to diagnosis:

Mode of transmission:

Rocky Mountain spotted fever—Bite of wood tick. Noncontagious.
Typhus fever—Bite of louse. Noncontagious after destruction of all lice.
Scarlet fever—Contagious, rarely transmitted by infected articles.
Measles—Contagious by direct contact.
Smallpox—Contagious in all stages. Infection also transmitted through infected articles.
Chicken pox—Contagious.
Typhoid fever—Direct or indirect contact with infected excreta.
Influenza—Direct contact.
Epidemic cerebrospinal meningitis—Direct contact with case or with carrier.

Occurrence:

Rocky Mountain spotted fever—Endemic in Rocky Mountain region during spring and early summer. Rural rather than urban. All ages susceptible, depending upon extent of exposure.
Typhus fever—Endemic in congested centers of population. Associated with poverty, filth, and famine. Most frequent in winter. All ages susceptible, depending upon extent of exposure.
Scarlet fever—Epidemic. Susceptibility greatest among children from 2 to 10 years old. Most prevalent during late winter and early spring.
Measles—Epidemic among nonimmunes of all ages. Not influenced directly by season.
Smallpox—Epidemic among nonimmunes. Scattered cases in incompletely vaccinated communities. Most prevalent during the winter season.
Chicken pox—Mildly epidemic without regard to season. Disease of early childhood, occasionally occurring in adults.
Typhoid fever—Scattered cases or may be epidemic, most frequently during late summer. Disease of youth and early adult life.
Influenza—Epidemic or pandemic among all ages. Most frequent during winter and early spring.
Epidemic cerebrospinal meningitis—Sporadic or epidemic. Most prevalent during winter and spring. In children and young adults.

Incubation:

Rocky Mountain spotted fever—3 to 12 days, usually 4 to 7.
Typhus fever—4 to 14 days, usually 8 to 12.
Scarlet fever—2 to 7 days, occasionally longer.
Measles—7 to 18 days, usually 10 to 12.
Smallpox—10 to 17 days.
Chicken pox—12 to 19 days.
Typhoid fever—1 to 3 weeks.
Influenza—1 to 3 days.
Epidemic cerebrospinal meningitis—Unknown.

Onset and early symptoms:

Rocky Mountain spotted fever—Onset rapid. Chill or chilly sensation. Marked prostration. Expression heavy. Patient very ill. Maximum temperature second to third day.

Typhus fever—Onset abrupt. Chill frequent. Prostration marked. Expression heavy. Patient very ill. Maximum temperature second to third day.

Scarlet fever—Onset sudden, with fever, headache, sore throat, and vomiting. Maximum temperature reached within 24 hours.

Measles—Onset gradual. Maximum temperature reached on full development of eruption.

Smallpox—Onset sudden with chill or chilly sensation, headache, and backache of varying degree.

Chicken pox—Onset mild, frequently without preeruptive symptoms.

Typhoid fever—Onset usually slow. Headache, anorexia, and epistaxis. Step-like rise of temperature reaching maximum in from four to seven days.

Influenza—Onset sudden. Rapid rise of temperature. Malaise, headache, and catarrhal respiratory symtoms.

Epidemic cerebrospinal meningitis—Onset usually abrupt. Sudden, severe headache and vomiting, with rigidity of neck muscles.

Eruption:

Rocky Mountain spotted fever—Primary eruption macular-roseolar second to third day, followed by petechial eruption, which does not disappear on pressure. Macules become slightly indurated but never true papules. Petechiæ may become purpuric and be followed by sloughing.

Typhus fever—Character and distribution of eruption very similar to Rocky Mountain spotted fever, but generally appears first on thorax. Face frequently free.

Scarlet fever—Punctate erythema or diffuse red blush beginning on neck and chest within 24 hours of onset. Disappears on pressure.

Measles—Koplik's spots. Small papular eruption arranged in crescentic groups, appearing first on face about the fourth day, and spreading to the trunk and lower extremities.

Smallpox—Appears first on forehead and wrists on third day, spreads rapidly preferring exposed surfaces. Soles and palms involved. Third day maculo-papules (shotty), fifth day vesicles, becoming umbilicated, eight day pustules, followed by crusts and pitting.

Chicken pox—Discrete macules, rapidly changing into papules and vesicles. Appears first on back and face, most abundant on trunk, rare on soles and palms. Eruption comes in crops, and hence is multiform.

Typhoid fever—Rose spots. Found on abdomen and back. Appear about seventh day, and later in small successive crops. Slightly elevated, disappear on pressure, and decrease in number toward the extremities.

Influenza—No characteristic eruption present.

Epidemic cerebrospinal meningitis—Eruption roseolar or petechial, varying in location and character, seen in less than one-third of the cases.

Course of disease:

Rocky Mountain spotted fever—Duration two to three weeks. Temperature continuous and moderately high throughout the attack, falling rapidly as convalescence begins. Slight desquamation.

Typhus fever—Course similar to that of Rocky Mountain spotted fever.

Scarlet fever—Duration 2 to 10 days. Temperature falls rapidly as rash fades. Desquamation marked, frequently in large patches.

Measles—Duration one to two weeks. Catarrhal symptoms marked. Rash lasts four or five days, and as it fades there is a gradual but rapid subsidence of fever and catarrhal symptoms. Desquamation in bran-like scales.

Smallpox—Duration about two weeks. Extreme variations in extent of eruption and constitutional symptoms. Temperature falls as eruption appears, to rise again during pustular stage.

Chicken pox—Duration brief. Constitutional symptoms very mild in children, and not usually severe in adults. Lesions crust in from two to four days.

Typhoid fever—Duration three to four weeks (atypical and paratyphoids shorter). Bronchitis and gastro-intestinal symptoms common. Spleen usually enlarged. Widal reaction present. Typhoid bacillus may be early isolated from blood.

Influenza—Duration less than one week in average case, but convalescence may be slow. Catarrhal disturbances the rule. Prostration out of proportion to other symptoms.

Epidemic cerebrospinal meningitis—Duration from 12 hours to 4 months. Temperature curve, course of disease, and symptomatology irregular. Headache, delirium, opisthotonos common. "Tâche cérébrale" and Kernig's sign frequently seen.

Termination:

Rocky Mountain spotted fever—Recovery slow in severe cases but without sequelæ. Followed by persistent mottling and marked immunity.

Typhus fever—Similar to that in Rocky Mountain spotted fever.

Scarlet fever—Recovery rapid. Complications and sequelæ frequent; nephritis, otitis, mastoiditis. Immunity marked.

Measles—Recovery rapid, followed by branny scaling. Complications, bronchopneumonia and pleurisy. Immunity marked.

Smallpox—Rapidity of recovery depends on severity of case. Pitting and scarring frequently seen. Immunity marked.

Chicken pox—Recovery rapid and complete, followed by immunity. No complications or sequelæ.

Typhoid fever—Recovery gradual. Relapses not uncommon. Immunity usually established.

Influenza—Recovery may be slow with various sequalæ. Relapses common. Influence on existing diseases bad. No immunity.

Epidemic cerebrospinal meningitis—Recovery slow and incomplete. Frequently followed by sequelæ; blindness, deafness, hydrocephalus, etc. No immunity.

Prevention.

Preventive measures naturally center about the wood tick, the conveyor of the infection. The dipping of domestic stock, the destruction of wild mammals, and the reclamation and cultivation of arable land, together with the burning over of the foothills, are all valuable procedures in reducing tick infestation. Experience has shown, however, that the dipping of domestic stock, if unaccompanied

by the destruction of small animals, results in but little diminution in the number of ticks, although their accessibility to persons may be somewhat decreased. It is therefore advisable that each of the eradicative measures mentioned should be instituted and continued throughout the tick season. For this reason, also, cooperation between the individual ranch owners is essential.

The investigation of sheep grazing as a means of eradication was begun by the Public Health Service in 1913. It was found that the close grazing of sheep resulted in the removal of undergrowth and the consequent destruction of favorable territory for ticks, and that the unsheared sheep which were grazed over infested land actually destroyed a large percentage of the ticks. Naturally the great advantage of this method of eradication is its economic possibilities. It is believed that if the problem of tick eradication can be placed upon an economic basis, in order that it may be carried out on an extensive scale without cost to the individual, its solution will ultimately result.

Of personal prophylactic measures little need be said. No person should visit tick-infested territory during the tick season unless precautionary measures are exercised. The wearing of tick-proof clothing affords a certain degree of protection, but too great reliance should not be placed upon this safeguard. The systematic inspection of the body at regular intervals for attached ticks and their immediate removal is to be recommended. The wound should be cauterized with a toothpick dipped in 95 per cent carbolic acid.